Amendment and Response
Applicant: Cory Watkins et al.
Serial No.: 10/073,656
Filing Date: February 11, 2002
Docket: 1552 – CA2
Title: CONFOCAL 3D INSPECTION SYSTEM AND PROCESS

IN THE CLAIMS

Please cancel claim 1 and add claims 6-10.

1.(Cancelled)

2.(Original)   A process of inspecting a surface including bumps thereon, the process comprising:

      scanning a surface using optics and a camera capable of determining light intensity for each pixel viewed;

      measuring the light intensity at each pixel at a first elevation;

      measuring the light intensity at each pixel at a second elevation; and

      determining the elevation of the surface using a Gaussian curve based upon the light intensities measured at the first and second elevations at each pixel.

3.(Original)   The process of claim 2 further comprising:

      scanning at least particular portions of a surface believed to contain protrusions extending outward from the surface using optics and a camera capable of determining light intensity for each pixel viewed;

      measuring the light intensity at each pixel at a third elevation;

      measuring the light intensity at each pixel at a fourth elevation; and

      determining the elevation of the protrusions using a Gaussian curve based upon the light intensities measured at the third and fourth elevations at each pixel.

4.(Original)   The process of claim 3 further comprising:

      determining the height of a protrusion by calculating the difference between the elevation of a protrusion and the elevation of the surface.

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5.(Original)   The process of claim 2 wherein an inspection device is used to perform the scanning and includes:

a light source;

a beamsplitter for receiving light from the light source and redirecting said light;

an aperture array for receiving light from the pellicle beamsplitter;

at least one reimager; and

a camera for collecting focused light.

6. (New)   The process of claim 2 further comprising:

selecting portions of a surface believed to contain a protrusion extending outward from the surface via light intensity measurements at the first elevation and the second elevation;

scanning at least the selected portions using optics and a camera capable of determining light intensity for each pixel viewed;

measuring the light intensity at each pixel at a third elevation;

measuring the light intensity at each pixel at a fourth elevation; and

determining the elevation of the protrusions using a Gaussian curve based upon the light intensities measured at the third and fourth elevations at each pixel.

7. (New)   The process of claim 6 further comprising:

selecting a focus range such that the light intensities at both the first elevation and the second elevation are substantially zero at a protrusion.

8. (New)   The process of claim 3 further comprising:

selecting a focus range such that the light intensities at both the first elevation and the second elevation are substantially zero at a valley in the surface.

9. (New)   The process of claim 3, wherein substantially zero light intensities at the third elevation and the fourth elevation indicate the absence of a protrusion.

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10. (New)   The process of claim 3, further comprising selecting a focus range such that the light intensity at the third elevation and the fourth elevation is substantially zero in the absence of a protrusion.